DOCUMENT RESUME

ED 449 039 SE 064 511

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TITLE	Graduate Enrollment in Science and Engineering Increases for the First Time Since 1993. SRS Data Brief.
INSTITUTION	National Science Foundation, Washington, DC. Div. of Science Resources Studies.
REPORT NO	NSF-01-312
PUB DATE	2001-01-11
NOTE	5p.
AVAILABLE FROM	For full text: http://www.nsf.gov/sbe/srs/.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Engineering Education; *Enrollment; *Graduate Students; *Graduate Study; Higher Education; *Science Education
IDENTIFIERS	*National Science Foundation; United States

ABSTRACT

Enrollment of science and engineering (S&E) graduate students in the United States increased in 1999 after five consecutive annual decreases. In the fall of 1999, 411,308 students were enrolled in S&E programs at the graduate level, a 2% increase from 404,903 in 1998. The number of full-time students enrolled for the first time in graduate science and engineering programs increased for the third consecutive year, signaling possible continued increases in total enrollment in the future. Statistical tables on graduate enrollment in science and engineering by field, race/ethnicity, and race/ethnicity of non-white United States citizens and permanent residents are included. (SAH)

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Division of Science Resources Studies

DATA BRIEF

National Science Foundation

Directorate for Social, Behavioral, and Economic Sciences

January 11, 2001

ED 449 039

Graduate Enrollment in Science and Engineering Increases for the First Time Since 1993

by Joan S. Burrelli

Computer science enrollment was up 12 percent.

Enrollment of science and engineering (S&E) graduate students in the United States increased in 1999 after 5 consecutive annual decreases (table 1). In Fall 1999, 411,308 students were enrolled in S&E programs at the graduate level, a 2-percent increase from the 1998 number of 404,903. The number of full-time students enrolled for the *first time* in graduate science and engineering programs increased for the third consecutive year, signaling possible continued increases in total enrollment in the future.

Enrollment by Field

Among science fields, the greatest gain in enrollment (12 percent) was in computer science. Other major science fields showed more modest gains, including agricultural sciences and social sciences (both up 1 percent). Graduate enrollment in earth, atmospheric, and ocean sciences; mathematical sciences; and psychology declined in 1999, continuing previous trends (table 1).

Engineering enrollment rose 1 percent in 1999, reversing a decline in enrollment that began in

Table 1. Graduate enrollment in science and engineering, by field: Fall 1992-99

Field	1992	1993	1994	1995	1996	1997	1998	1999
Total	430,635	435,869	431,233	422,533	415,258	407,656	404,903	411,308
Sciences, total	312,632	319,035	318,240	315,360	312,069	306,586	304,934	309,840
Physical sciences	35,348	35,318	34,449	33,388	32,324	31,078	30,571	30,689
Earth, atmospheric, and ocean sciences	15,333	15,731	15,968	15,722	15,185	14,565	14,259	14,082
Computer sciences	36,325	36,213	34,158	33,458	34,626	35,991	38,027	42,560
Mathematical sciences	20,355	20,000	19,579	18,509	18,015	16,729	16,488	16,254
Agricultural sciences	11,841	11,988	12,273	12,450	12,009	11,893	11,877	12,036
Biological sciences	54,180	56,458	58,152	58,775	58,170	57,140	57,124	57,320
Psychology	53,484	54,557	54,554	53,641	53,122	53,126	52,577	51,874
Social sciences	85,766	88,770	89,107	89,417	88,618	86,064	84,031	85,025
Engineering, total	118,003	116,834	112,993	107,173	103,189	101,070	99,969	101,468
Chemical engineering	7,397	7,516	7,608	7,424	7,373	7,247	7,060	6,849
Civil engineering	19,572	19,583	19,925	19,218	18,528	17,156	16,481	16,190
Electrical engineering	36,428	35,290	33,020	30,721	29,702	30,548	31,129	31,368
Industrial/manufacturing engineering	13,525	13,596	13,661	13,143	12,399	11,736	10,995	10,886
Mechanical engineering	18,637	18,477	17,761	16,363	15,509	15,045	14,696	14,956
Metallurgical and materials engineering	5,512	5,363	5,191	4,920	4,713	4,649	4,644	4,451
Aerospace engineering	4,036	3,940	3,715	3,343	3,208	3,083	3,137	3,349
Biomedical engineering	2,537	2,675	2,750	2,732	2,732	2,847	2,905	3,121
Petroleum engineering	737	725	624	610	562	561	571	642
Other engineering	10,359	10,394	9,362	9,309	9,025	8,759	8,922	10,298

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering

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1993. A number of engineering fields accounted for the increase, including aerospace, electrical, mechanical, biomedical, and petroleum engineering. However, enrollment in several larger engineering fields (chemical, civil, and industrial engineering) continued to decline.

Enrollment by Citizenship and Race/ethnicity

Students with temporary visas more than accounted for the increase in total S&E graduate enrollment. Enrollment of students with temporary visas increased 8 percent from 102,028 in 1998 to 109,904 in 1999 (table 2). This increase was the third consecutive increase in foreign enrollment, following a four-year decline between 1992 and 1996 during which enrollment dropped 10 percent. The majority of the increase in foreign student enrollment was in computer science (up 19 percent) and in engineering (up 10 percent).

Total enrollment was up 2 percent; enrollment of students with temporary visas was up 8 percent.

Enrollment of U.S. citizens and permanent residents dropped from 302,875 in 1998 to 301,404 in 1999. Among U.S. citizens and permanent residents, the number of white, non-Hispanic graduate S&E students dropped from 220,689 in 1998 to 216,865 in 1999, the 6th consecutive annual drop since 1993. Enrollment of blacks and Asians rose 3 percent each and enrollment of Hispanics rose 7 percent. American Indian enrollment dropped 3 percent (table 2 and figure 1).

Data presented in this Data Brief are from the 1999 Survey of Graduate Students and Postdoctorates in Science and Engineering. Data were collected from approximately 11,700 departments at 599 institutions of higher education in the United States and outlying areas. The departmental response rate was 98.8 percent; however, 18 percent of the responding departments required partial imputation of missing data. More detailed data are available in the forthcoming report, *Graduate Students and Postdoctorates in Science and Engineering: Fall 1999*.

This Data Brief was prepared by:

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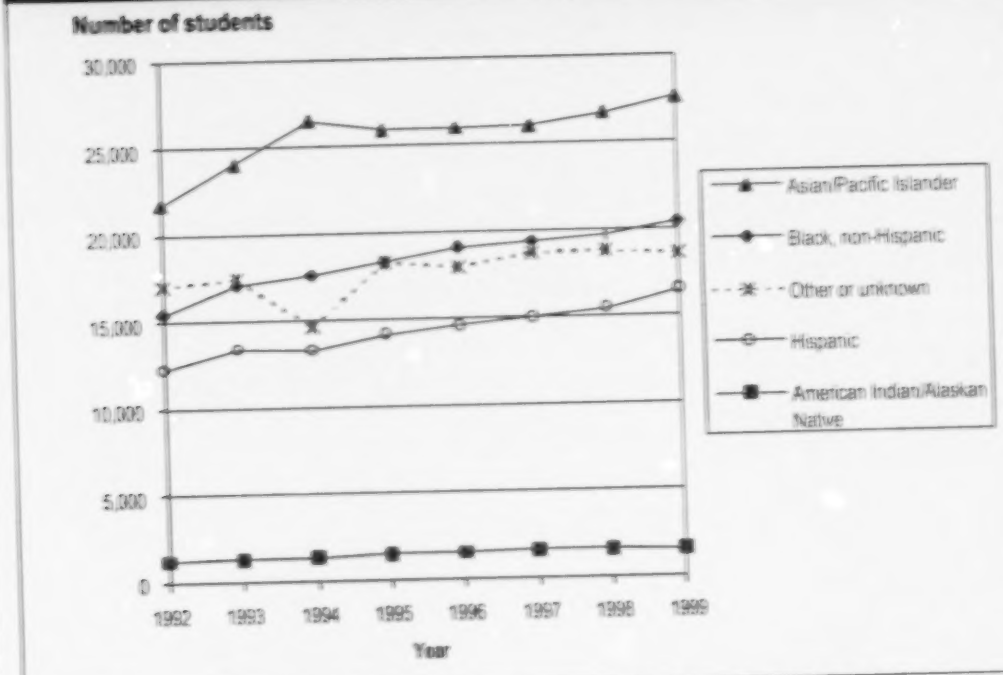
Table 2. Graduate enrollment in science and engineering, by citizenship and race/ethnicity: Fall 1992-99

Citizenship and race/ethnicity	1992	1993	1994	1995	1996	1997	1998	1999
Total	430,635	435,869	431,233	422,533	415,258	407,656	404,903	411,308
U.S. citizens and permanent residents	321,171	330,148	329,073	323,993	317,101	308,665	302,875	301,404
Black, non-Hispanic	15,445	17,116	17,610	18,282	19,068	19,346	19,654	20,341
American Indian/Alaskan Native	1,243	1,309	1,382	1,516	1,538	1,600	1,607	1,557
Asian/Pacific Islander	21,751	24,059	26,475	25,904	25,928	26,007	26,709	27,562
Hispanic	12,246	13,381	13,277	14,111	14,568	14,980	15,476	16,514
White, non-Hispanic	253,425	256,840	255,701	245,893	238,062	228,018	220,689	216,865
Other or unknown	17,061	17,443	14,628	18,287	17,937	18,714	18,740	18,565
Non-U.S. citizens	109,464	105,721	102,160	98,540	98,157	98,991	102,028	109,904

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering

Figure 1. Graduate enrollment in science and engineering, by race/ethnicity of non-white U.S. citizens and permanent residents: Fall 1992-99



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering

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